

OUTCOMES OF PORTAL VEIN THROMBOSIS AND SMOKING WITH CIRRHOSIS: A NATIONWIDE INPATIENT SAMPLE



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Introduction

Portal vein thrombosis (PVT) is a frequent complication in patients with cirrhosis. There is limited data on the outcomes of PVT in patients who smoke in relation to cirrhosis. Still, it may also exist as an independent vascular condition without liver damage, such as in prothrombotic states [1].

We aim to determine outcomes in patients diagnosed with PVT who smokes with and without cirrhosis.

Methods and Materials

A retrospective analysis was performed by utilizing the National Inpatient Sample database (2016, 2017, and 2018) and the International Classification of Diseases, Tenth Revision codes to identify the patients with the principal diagnosis of PVT and smoking.

We assessed the all-cause in-hospital mortality, morbidity, length of hospital stay (LOS), and total costs between groups with and without cirrhosis. Categorical variables were compared using the chi-square test, and continuous variables were compared using the t-test.

Frequency in %	With Cirrhosis (N= 14,991)	Without Cirrhosis (N= 18,323)	OR and CI	p-value
In-hospital mortality	10.0	3.6	2.8 [2.40-3.630]	0.00
Upper GI bleeding	6.2	3.4	1.87 [1.48-2.37]	0.00
AKI	31.6	15.8	2.45 [2.18-2.76]	0.00
Peritonitis	7.1	1.4	5.00 [3.82-6.82]	0.00
Sepsis	6.2	5.7	1.09 [0.89-1.33]	0.395
Ileus	2.53	2.95	0.85 [0.62-1.15]	0.31
Patient Characteristics				
Age (mean)	61	60		
Female	29.6	38.3		0.000
Race				
Caucasian	66.6	72.3		
African American	10.2	12.2		
Hispanic	15.4	9.0		0.000
Asian	3.5	2.8		
Native American	1.0	0.3		
Others	3.1	3.0		
Insurance				
Medicare	50.2	46.2		
Medicaid	21.1	15.81		0.000
Private	25.1	34.1		
Others/Uninsured	3.4	3.8		
Bed size				
Small	12.8	14.3		
Medium	21.2	21.6		0.25
Large	65.5	64.5		
Hospital Region				
Northeast	19.2	22.1		
Midwest	24.0	26.5		0.32
South	31.4	30.8		
West	25.2	20.4		
Teaching hospital	83.8	81.8		0.03
Chronic comorbidity				
Hypertension	36.6	41.9		0.00
Diabetes mellitus	38.8	29.6		0.000
Chronic kidney disease	14.8	8.8		0.000
Chronic heart failure	8.2	6.8		0.03
Obesity	13.5	13.4		0.91
Dyslipidemia	20.5	30.3		0.00
Coronary artery disease	14.1	15.0		0.31

Results

We identified 33,314 patients with PVT who are also smokers, of whom 14,991 had cirrhosis, and 18,323 were without cirrhosis. The in-hospital mortality was significantly higher in patients with cirrhosis (OR 2.95, 95% CI 2.40–3.63; $P < 0.01$). Diabetes ($P < 0.01$), obesity ($P = 0.001$), cardiovascular comorbidity ($P < 0.01$), and older age ($P = 0.02$) are identified as predictors of mortality. Patients with PVT and smoking with cirrhosis have high odds of upper GI bleeding (OR 1.87, 95% CI 1.48–2.37; $P < 0.01$), peritonitis (OR 2.0, 95% CI 3.82–6.82; $P < 0.01$), and acute kidney injury (OR 2.45, 95% CI 2.18–2.76; $P < 0.01$). We found that PVT patients with cirrhosis had a longer LOS (6.7 days vs. 6.1 days; $P < 0.01$) and higher total hospital costs (\$12,324 vs. \$10,238; $P < 0.00$).

Discussion

In patients with PVT who are current smokers, cirrhosis is an independent significant risk factor for in-hospital mortality.

Cirrhosis has been associated with increased complications like upper GI bleeding, peritonitis, and acute kidney injury in PVT. Mean LOS and resource utilization were also higher in patients with cirrhosis compared to patients without cirrhosis.

References

- Intagliata NM, Caldwell SH, Tripodi A. Diagnosis, Development, and Treatment of Portal Vein Thrombosis in Patients With and Without Cirrhosis. *Gastroenterology*. 2019;156(6):1582- 1599.e1. doi:10.1053/j.gastro.2019.01.265